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Development, Testing and Installation of Instructional Modules for Preparation of Private Pesticide Applicators in Vocational Agriculture Education Programs

Ellis Associates, Inc. College Park, Md.

Prepared for

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16. Abstract

Public Law 92-516 specifies that all individuals who are applicators of restricted use pesticides must meet federal and state certification standards by October 1977. The Environmental Protection Agency realized that in order to meet these requirements, a major training effort would be needed. The vocational agriculture education programs which operate as part of the public education system throughout the United States were seen as an appropriate delivery system for the preparation of both youth and adults for certification as pesticide applicators. This report represents the final document of a project in which a training package covering the basic principles of pesticide use, handling, and application was designed, tested, and prepared for installation in vocational agriculture education programs in the United States.

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DEVELOPMENT, TESTING, AND INSTALLATION OF INSTRUCTIONAL MODULES FOR PREPARATION OF PRIVATE PESTICIDE APPLICATORS IN VOCATIONAL AGRICULTURE EDUCATION PROGRAMS

Table of Contents

	Page
Introduction	1
Phase I of Project	7
Phase II of Project	10
Future Actions in Support of Private Pesticide Applicator Training in Vocational Agriculture Education Programs	19
Appendices	22
Appendix A: Field Test Teachers and Sites, by EPA Region	
Appendix B: Critique Forms for the Field Test of "Principles of Proper Pesticide Use, Handling, and Application"	
Appendix C: Agendas for Six Workshops Covering EPA Regions	
Appendix D: Participants in Six Workshops Covering EPA Regions	

INTRODUCTION

This report represents the final documentation of a project in which a training package covering the basic principles of pesticide use, handling and application was designed, tested, and prepared for installation in vocational agriculture education programs in the United States.

PROJECT BACKGROUND/RATIONALE

Public Law 92-516, The Federal Insecticide, Fungicide, and Rodenticide Act as amended by Public Law 94-140, specifies that all individuals who are applicators of restricted use pesticides must meet federal and state certification standards by October, 1977, and thereafter. The Environmental Protection Agency recognized that in order for individuals across the country to be equipped with the skills and knowledge required for certification as restricted use pesticide applicators, a major training effort would be necessary. The EPA also recognized that the development and implementation of the required training was time sensitive, in that the inability of those employed in agriculture occupations to meet certification requirements by the time deadline established in the legislation could easily result in disruption of agricultural production and services.

The vocational agriculture education programs which operate as part of the public education system throughout the United States were seen as an appropriate delivery system for the preparation of both youth and adults for certification as pesticide applicators. In independent public school districts across the country, there are approximately 400,000 high school students, 200,000 young farmers, and 200,000 adult farmers participating in both full-time school programs and continuing education programs in vocational agriculture. These programs are provided by more than 11,000 vocational agriculture teachers. The teachers in each school district receive support in various forms from district, or regional, supervisors of vocational agriculture. These supervisors are employees of the state, or territory, education agency. They report to a state supervisor, or director, of vocational agriculture who reports, in turn, to a state director, or commissioner, of vocational education.

Just as vocational agriculture programs are tailored to the unique circumstances and needs of the agricultural areas in which they operate, so, too, are the requirements for certification in pesticide application tailored to the agricultural areas in each state. The establishment of certification requirements is the responsibility of the state lead agency -- a state agency designated as responsible for administration of the state's certification plan -- in each individual state and territory, and there are variations across states and territories in the ways in which the requirements are specified. Even so, there is a core of common requirements for skill and

knowledge in pesticide application that exists in all agricultural areas, based upon federal certification standards.

Faced with the dual problems of decentralized, independent vocational agriculture education programs throughout the country, and individual state responsibility and prerogative in establishing private pesticide applicator certification requirements, this project was funded by EPA in an effort to capitalize on (1) the existence of a mechanism in each state and territory for the coordination of vocational agriculture education, and (2) the ability to identify a set of common core requirements for private pesticide applicator certification across all states and territories.

PROJECT OBJECTIVES

The general objectives of this project were (1) the development of a package of instructional modules for use by vocational agriculture educators in the preparation of future farmers, young farmers, and adult farmers for certification as restricted use pesticide applicators, and (2) the installation of the instructional modules in vocational agriculture education programs present in public school systems across the United States.

Within these general objectives, the specific objectives of the project were the following:

1. Design and development of a package of modules for training youth and adults in farm pesticide application, based on a review of existing materials for pesticide applicator training, and an analysis of common core requirements for training farm pesticide applicators across the country.

2. Field testing of the package of instructional modules in public vocational agriculture education programs at the secondary and postsecondary levels in each of the 10 Environmental Protection Agency Regions in the United States.

3. Finalization of the package of instructional modules, based on field test experience, and based on the review of a project advisory committee comprised of experts in vocational agriculture education.

4. Conduct of a series of seminar/workshops for district supervisors and state supervisors of vocational agriculture and head vocational agriculture teacher educators across the 10 EPA regions in the United States, to acquaint them with the package of training modules and with the legislative requirement for certification of private pesticide applicators; distribution of packages of modules to key vocational educators, Agricultural Extension Service personnel, and other interested agents participating in the seminar/workshops.

5. Throughout the project, provision of information on the private pesticide applicator instructional modules to agencies,

associations, institutions, and individuals likely to benefit from the modules and/or contribute to the broad dissemination and use of the modules.

6. Development of recommendations for future actions to be taken by federal and state agencies to ensure that vocational agriculture educators across the country are kept abreast of the latest requirements for, and developments in, the training of pesticide applicators.

The timing of the presentation of the seminar/workshops was an especially critical element in the success of this project. It was important that district and regional supervisors, state supervisors, and head teacher educators in vocational agriculture were exposed to the pesticide applicator modules during the spring of 1976. Each spring, these vocational education leaders work with vocational agriculture teachers in the planning and development of summer training programs for the teachers. It is through these summer workshops that teachers become acquainted with new instructional requirements and new materials. By providing an orientation to the instructional modules during the spring, therefore, the project sought to equip vocational agriculture supervisors and teacher educators to expose the greatest possible number of vocational agriculture teachers to the modules prior to the 1976-77 school year.

PROJECT PRODUCTS

This project was funded to produce two basic products. The first: A package of instructional modules for preparation of private pesticide applicators in vocational agriculture education programs. The second: A final project report documenting all project experience, and presenting recommendations for future government actions affecting the preparation of pesticide applicators in vocational agriculture education programs (this document).

Instructional Modules

The package of instructional modules produced through this project is entitled "Principles of Pesticide Use, Handling, and Application -- Instructional Modules for Vocational Agriculture Education." The package is presented as a teacher's manual, containing information and materials to be used by both teachers and students.

The package contains 11 instructional modules, or units, covering the following subjects.

- Module I: Introduction, covering problems associated with pesticide usage, EPA classifications of pesticides, and capabilities of a certified private pesticide applicator.
- Module II: Pests, covering main groups of pests, types of insect damage to crops, causes and symptoms of plant disease, life cycles of insects, differences between grasses and broadleaf plants, sources for aid in identifying pests, and interpretation of pesticide labels.

- Module III: Environmental Protection, covering reasons for protecting the environment, contributions of pesticides to betterment of environment, and interpretation of pesticide labels.

- Module IV: Pesticides, covering best methods of application given characteristics of pesticides, situations in which short-term, residual and broad-spectrum insecticides and nonselective and selective herbicides should be used, importance of timing of herbicide application, factors to consider in good pest control, factors an applicator must consider in choosing a pesticide, and interpretation of pesticide labels.

- Module V: Labels and Labeling, covering definitions of common name, chemical name and brand name, distinguishing characteristics of general use and restricted use pesticides, importance of days to harvest and days to slaughter, reentry regulations, identification of facts contained on pesticide labels, and interpretation of label information.

- Module VI: Personal Safety and First Aid, covering acute and chronic poisoning, decisions concerning induction of vomiting, examples of each of the three families of pesticides, ways pesticides enter the body, relationship of signal words to categories of toxicity, relationship of degrees of poisoning to signs and symptoms of poisoning, first aid kit items and their uses, basic first aid rules, identification of safe and unsafe pesticide practices, and interpretation of label information.

- Module VII: Safety Before, During and Following Application, covering safety steps in transportation of pesticides, safety rules before, during and following pesticide application, types of clothing and equipment needed for pesticide application, and interpretation of pesticide labels.

- Module VIII: Formulation and Application, covering amounts of wettable powder and emulsifiable concentrate to use in applications, advantages and disadvantages and principal uses of various types of formulations, and interpretation of labels to determine appropriate types of formulations and mixing procedures.

- Module IX: Equipment and Its Use, covering types of equipment used to apply pesticides, procedures for calibrating the equipment, and problems involving calibration.

- Module X: Disposal and Storage, covering proper methods for disposing of surplus pesticides and pesticide containers, safety considerations for disposal and storage of pesticides and their containers, steps to follow in rinsing pesticide containers, and interpretation of pesticide labels.

- Module XI: Record Keeping and Liability, covering reasons for keeping records of pesticide use, completion of standard record-keeping forms, common claims brought against applicators, and steps to take if involved in legal problems.

Each module of instruction contains the following:

- Terminal Objectives: Behavioral objectives which state the subject matter to be covered (essentially the same as the above descriptions of units).
- Specific Objectives: Behavioral objectives which specify the student performance required to reach the terminal objectives.
- Suggested Activities: Steps to follow in reaching specific objectives. Activities are listed for both the instructor and the students.
- Instructional Materials: Outline/listing of the instructional materials contained in the unit.
- Information Sheets: Sheets containing relevant terms and definitions and other information items which students must have to reach the cognitive objectives of the unit.
- Transparency Masters: Illustrations to be used by the instructor to produce transparencies. Some present new information to the students; others reinforce information contained on the information sheets.
- Assignment Sheets: (Except Unit I) Exercises giving students practice in the use of the information covered in the unit. Sheets may be used in class or in homework assignments.
- Answers to Assignment Sheets: Answer sheets for use in checking performance on assignments.
- Test: Paper and pencil test to measure students' achievement of each unit objective. Some tests include tasks to be performed by students, and discussion questions which may be handled orally.
- Answers to Test: Answer sheet for use in checking performance on test.

Preceding the 11 modules, instructions covering the use of the teacher's manual are provided. Also provided are references to selected audio-visual materials which may be used to supplement the presentation of the units. Selected printed references are also listed.

OVERVIEW OF PROJECT PHASES AND TASKS

In achieving the project objectives listed earlier in this section, and in producing the end product described above, project work was divided into two major phases.

In Phase I of the project, the following tasks were completed.

Task A: Initial design of instructional modules, including review of existing materials and identification of common core requirements for pesticide application.

Task B: Identification of module field test sites in each of the 10 EPA regions in the United States.

Task C: Development of 11 modules on the use, handling, and application of pesticides.

In Phase II of the project, the following tasks were completed.

Task A: Field testing of instructional modules in public vocational agriculture programs in the 10 EPA regions.

Task B: Revision of the modules based upon results of the field test experience.

Task C: Review of the revised modules by an advisory committee comprised of experts in vocational agriculture education.

Task D: Review of the revised modules by the Working Group on Training of the Extension Committee on Policy, Extension Service, U.S. Department of Agriculture.

Task E: Review by the Advisory Committee of preliminary plans for workshops to provide vocational agriculture leaders in each EPA region with information on modules and on legislative requirements governing pesticide application.

Task F: Finalization and printing of copies of instructional module packages for use in workshops.

Task G: Finalization of plans for workshops.

Task H: Issuance of workshop invitations to vocational agriculture leaders and other key individuals across the 10 EPA regions.

Task I: Organization and conduct of six workshops covering the 10 EPA regions.

Task J: Throughout the project, dissemination of information on the project to interested organizations and individuals.

Task K: Preparation and submission of final products of the project.

A discussion of the work performed within each of these tasks comprises the following two sections of this final report.

PHASE I OF PROJECT

The three basic tasks performed during Phase I of this project contained the following activities.

TASK A

Pending notification of the start of the project, Ellis Associates, Inc. undertook the initial design of the private pesticide applicator instructional modules.

Producing the initial design called for (1) a review of existing materials prepared for use in training pesticide applicators, and (2) an analysis of federal standards for certification of private pesticide applicators, as the basis for determination of a core of training requirements common to the states and territories. Because each state develops and administers its own certification standards, the common core training requirements do not cover all contingencies of certification requirements in all states. They do, however, cover the federal requirements, which serve as a base and minimum standard for establishment of requirements in each state.

The two parts of Task A were performed concurrently, in that the task called for the identification of already existing materials that would contribute to training to meet the common core requirements for applicator certification. Section 4 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended, authorizes the prescription of federal standards for certification of restricted-use pesticide applicators, and describes the procedures for approval of state plans for certification. The federal standards on which common core training requirements were based for this project were published in the Federal Register of October 9, 1974. It was determined that the common core of training requirements to be met by the modules included: recognition of common pests and damage caused by them; understanding of labeling information, including common name of pesticide, pests to be controlled, timing and methods of application, safety, preharvest and re-entry restrictions, and special disposal procedures; application of pesticides according to label instructions and warnings, including preparation of proper concentrations of pesticide for given circumstances and in light of area to be covered, speed of application equipment, and quantity of pesticide dispersed in a given period; recognition of local environmental situations that must be taken into consideration in order to avoid contamination; recognition of poisoning symptoms and procedures to follow in a pesticide accident; understanding of proper storage, use, handling and disposal of pesticides and their containers; understanding of legal responsibilities of pesticide applicators.

Existing training materials of potential relevance and applicability to this project were supplied by the EPA Project Officer. Across these materials, many components covering the common core of pesticide applicator training requirements were present. The modules that were developed during this project utilized information contained in many of these existing training components.

The format selected for the instructional modules was that developed and in use by the Oklahoma State Department of Vocational-Technical Education. This format, comprised of objectives statements, teacher and student activities, information sheets, transparencies, assignment sheets and tests, was described in the introductory section of this report. The format was chosen not only because of its excellent design, but also because of its wide acceptance and use in the vocational agriculture education community across the country. The Oklahoma Department of Vocational-Technical Education serves as one of the U.S. Office of Education's regional curriculum development centers, with responsibility for vocational agriculture curriculum. In addition, Oklahoma is a member of the Mid-America Vocational Curriculum Consortium, and is actively involved with other member states in the development and dissemination of a wide range of vocational curriculum materials.

TASK B

Concurrent with the design and development of the instructional modules during Phase I, sites to be used in the field testing of the modules were identified. One site was identified in each of the 10 Environmental Protection Agency and U.S. Office of Education Regions. Selection of the sites was accomplished by Ellis Associates Inc. in conjunction with cognisant personnel in EPA, USOE, and state departments of vocational education. The following sites were selected.

Region I - Essex Regional Vocational and Technical Center, Essex Junction, Vermont

Region II - Freehold Township High School, Freehold, New Jersey

Region III - Gaithersburg High School, Gaithersburg, Maryland

Region IV - Southeast Guilford High School, Greensboro, North Carolina

Region V - Worthington High School, Worthington, Minnesota

Region VI - Lorena High School, Lorena, Texas

Region VII - Williamsburg High School, Williamsburg, Iowa

Region VIII - Larimer County Vocational and Technical Center, Fort Collins, Colorado

Region IX - Westwood High School, Mesa, Arizona

Region X - Meridian High School, Meridian, Idaho

Complete addresses of field test sites, and names of the 14 field test teachers who participated in the project, are contained in Appendix A to this report.

Having identified the field test teachers, and having developed drafts of the instructional modules (through Task G, below), the teachers were given an orientation to the modules and to the evaluation tasks they would be called upon to perform as part of the field test. Because of severe time constraints, rather than conducting a single teacher orientation program, each teacher was given individual instruction through a series of telephone contacts.

PHASE I COORDINATION

Throughout Phase I, extensive coordination with federal, regional, state, and local agencies and individuals was required. Communication was maintained with numerous persons concerned with pesticide applicator certification and training to (1) ensure awareness and understanding of objectives of project, (2) ensure module design and development reflecting state-of-the-art knowledge, (3) arrange for field testing of modules, and (4) plan for Phase II of the project. Communication was maintained with key individuals in the Environmental Protection Agency, U.S. Office of Education, U.S. Department of Agriculture, State Extension Services, State Departments of Vocational Education, professional associations and working committees, and colleges and universities. Additional discussion of the coordination and information exchange that occurred during this project is contained in the Phase II section of this report.

TASK G

Following the review of materials and determination of format for the modules, the module development activity began. The vocational agriculture curriculum development specialists working with Ellis Associates, Inc. on the modules were associated with the Oklahoma State Department of Vocational-Technical Education. The three specialists, therefore, were experienced in the development of vocational agriculture instructional materials, including pesticide materials, using the format that had been selected for the modules (as described in Task A).

Prior to the start of the project, it was envisioned that the preparation of students for certification as private pesticide applicators could be accomplished using 10 instructional modules. During the development activity, it was determined that the material to be covered would better be presented through 11 instructional modules.

PHASE II OF PROJECT

The 11 basic tasks performed during Phase II of this project contained the following activities.

TASK A

Phase II began with the field testing of the color coded private pesticide applicator instructional modules at the 10 sites selected in Phase I. Across the 10 secondary vocational agriculture programs involved, 354 students were exposed to the module materials. At intervals throughout the field test period, each site was monitored by Ellis Associates, Inc. During the field test, site visits were made to Gaithersburg, Maryland, and Greensboro, North Carolina.

Each field test teacher was responsible for a detailed critique of the modules, based on individual experience in their presentation. Structured critique forms were developed and provided by Ellis Associates, Inc. The forms were designed to obtain background information on the classes involved in the field test, assessments of the materials used in the test, and other information on circumstances surrounding the field test. The bulk of the evaluative information obtained from the teachers concerned the content and structure of each individual module. For each module, teachers assessed the objectives, strengths and weaknesses of the material presented, as well as student performance and motivation. The forms used to obtain the evaluative information on the field test are contained in Appendix B to this report.

TASK B

As the evaluation results were obtained from the field test sites, revisions of the technical content and format of the modules were undertaken.

In addition to the field test evaluation information, recommendations concerning improvement of the content and structure of the modules were obtained from a group of vocational agriculture specialists who had been provided with sets of the modules at the beginning of the field test. Recommendations were also obtained from a group of pesticide specialists who had been provided with sets of the modules for review purposes, and from the cognizant EPA personnel associated with this project.

TASK C

After having revised the content and structure of the modules based upon field testing and expert evaluation, the revised modules were reviewed by the project's Vocational Agriculture Advisory Committee.

The Advisory Committee had been formed prior to the start of the project. Its purpose was to provide technical guidance to the project overall. The three members were persons in positions which provided an excellent overview of vocational agricultural education across the country.

- James E. Dougan, President
  National Association of Supervisors of Agricultural Education
- Luther Latum, President
  National Vocational Agricultural Teachers' Association, Inc.
- Dr. James F. Horner, President
  American Association of Teacher Educators in Agriculture

The Advisory Committee had met with project staff prior to the start of the project, and again during the development of the modules (Phase I, Task C). At this point in the project, each of the advisors was provided with a copy of the revised modules, and each was asked for an overall critique of the modules in preparation for finalization and printing.

TASK D

Although not originally proposed in the project plan, as the project unfolded EPA representatives suggested that Ellis Associates, Inc. request that the Working Group on Training of the Extension Committee on Policy, Extension Service, U.S. Department of Agriculture, review the first draft of the modules. The Committee graciously agreed, and did review the modules and provided their suggestions and comments.

TASK E

Concurrent with the Vocational Agriculture Advisory Committee review of the revised modules, a review of the preliminary plans for the EPA regional workshops was performed.

The plans for the EPA regional workshops had been developed by Ellis Associates, Inc. during the early months of Phase II of the project. Workshop plans involved (1) selection of the best possible locations for the workshops across the country, (2) scheduling of workshops to meet the time constraints established by the project, i.e., the requirement that the workshops be completed during the spring of 1976, to ensure utilization of the modules by individual school systems in summer workshops for vocational agriculture teachers, and (3) design and development of the programs to be presented at each of the workshops.

Because the workshops represented the vehicles through which the modules were to be first introduced to the vocational agriculture community in the United States, their success was critical to the overall success of the project. Careful attention was given to the location and timing of each workshop, as well as the manner in which workshop participants were initially contacted, in order to maximize opportunities for attendance by the key vocational agriculture leaders in each EPA region. Throughout the workshop planning period, Ellis Associates, Inc. project staff worked closely with Federal and regional representatives of both EPA and the U.S. Office of Education. Within each region, workshop planning involved contacts with the Pesticides Branch and the Manpower Planning Branch of EPA, and the OSOE Regional Office.

It had been determined, prior to the start of the project, that six workshops would be conducted. This meant that for some of the workshops, more than one EPA region would be covered. The procedure for "collapsing" regions to be covered by the workshops took into account both the travel distances involved for workshop participants from the individual states in the regions, and the knowledge that many of the regions had established good working relationships through cooperative multi-regional activities in the past. In light of these criteria, the workshop locations and regional groupings selected were the following.

- Hartford, Connecticut - Serving Regions I, II, III
- Atlanta, Georgia - Serving Region IV
- Chicago, Illinois - Serving Region V
- Kansas City, Missouri - Serving Regions VI, VII
- Denver, Colorado - Serving Region VIII
- San Francisco, California - Serving Regions IX, X

To maximize opportunities for attendance at workshops by key vocational agriculture leaders, extension personnel, and pesticide specialists in each state, care was taken that workshops not be scheduled in conflict with other meetings dealing with vocational agriculture or pesticides. The U.S. Office of Education made available a master schedule of regional and state meetings that had been scheduled for the spring of 1976. Using this master schedule as a base, a tentative schedule of workshops was developed and provided to each OSOE Regional Office. OSOE personnel in each region contacted the states within their jurisdiction to verify the acceptability of the dates set for their workshops. This same procedure was followed for EPA. The tentative workshop schedule was provided to each EPA Regional Office. The states in each EPA region were contacted to verify the acceptability of workshop dates. Based on the results of the OSOE and EPA checks of state meeting schedules, the schedule for regional and multi-regional workshops was established as follows.

- Regions I, II, III - March 1, 2
- Region IV - February 17, 18

- Region V - March 29, 30
- Regions VI, VII - April 12, 13
- Region VIII - April 26, 27
- Regions IX, X - May 3, 4

The program to be presented at each workshop was designed by Ellis Associates, Inc. to accomplish a number of objectives. The primary objective was the introduction of workshop participants to the format, content, and use of the private pesticide applicator instructional modules. In addition, the workshops were intended to bring together all regional and state personnel sharing interests in and responsibilities for the training and certification of private pesticide applicators; to acquaint these persons with one another. The workshops were also intended to make all participants aware of the laws and regulations governing private pesticide applicator certification; and to make participants aware of the training resources that are available through EPA.

To meet these workshop objectives, the design of the program for each workshop contained the following features:

- At the start of each workshop, a welcoming statement by a high-level regional EPA administrator and a high-level regional USDA administrator from the region in which the workshop is conducted.
- A presentation on laws and regulations governing private pesticide applicator certification, delivered by the Chief of the Pesticide Programs Branch or other high-level administrator or pesticide specialist from the EPA region in which the workshop is conducted.
- A series of training sessions on the format, technical content, and use of the modules, presented by the Ellis Associates, Inc. project staff, including the curriculum development specialists involved in the development of the modules.
- A presentation on the resource and supplementary materials available to educators from EPA, delivered by the Project Officer, Office of Pesticide Programs, EPA.
- A discussion of the major roles of the three agencies concerned with private pesticide applicator certification and training -- the EPA, the USDA, and the USDA Extension Service -- conducted by federal or regional representatives from each of the three agencies.
- A presentation on mechanisms for certification of private pesticide applicators, delivered by the Chief of the Pesticides Programs Branch or other high-level administrator or pesticide specialist from the EPA region in which the workshop is conducted.
- A discussion of specific state requirements for private applicator certification, conducted by a panel of state lead agency representatives in attendance.

The workshop program was designed to be covered in one and one-half days. To encourage interaction among the vocational agriculture educators, the Extension Service personnel, State Lead Agency personnel, and the EPA personnel in attendance, coffee breaks and question and answer periods punctuated the workshop sessions. In addition, a luncheon for all participants was included in the first-day activities of each workshop, and participants were encouraged to review the EPA resource and supplementary materials in the evening following the first-day activities.

TASK F

Following the review of the revised modules by the Vocational Agriculture Advisory Committee to the project, the modules were submitted in camera-ready form to EPA. The modules were then printed by EPA in quantities sufficient for distribution to all participants in the six scheduled workshops. Based upon estimates of workshop attendance, plus estimates of need for information and review copies to be supplied to project advisors and other vocational agriculture and pesticide specialists, EPA printed 1,700 copies of the modules.

The format design chosen for the modules early in Phase I of the project called for color coding of the individual sections of each module. Consistent with accepted curriculum development practices, the format design called for objectives sheets, information sheets, assignment sheets, and tests to be printed in different colors, for ease of use in the classroom. The Government Printing Office, to which the modules had been delivered by EPA, was unable to print the modules on other than white paper. Pending an unsuccessful appeal of this problem to the Government Printing Office, the project was forced to compromise the format design of the modules. Unlike the modules used in the field test, the modules printed for distribution to workshop participants and others were not color coded. Further, the quality of the printing of parts of the modules was such that some difficulty in reading the material was experienced.

TASK G

Following the review of the preliminary workshop plans by the project's Advisory Committee, the plans were put in final form in preparation for the first scheduled workshop in Atlanta, Georgia. These final plans were then discussed with the Advisory Committee members prior to the start of the first workshop. (The final workshop plans were essentially those described under Task E, above.)

It should be noted that the first workshop was intended to serve as a trial model for all subsequent workshops. Based upon the first workshop experience, it was determined that workshop effectiveness would be increased through the following basic modifications to the agenda.

- Addition: A presentation of overall workshop objectives prior to the welcoming addresses by the EPA and USOE officials.

- Change: The discussion of the major roles of EPA, USOE, and the USDA Extension Service early on the first day of the workshop, rather than on the second day.

- Addition: A discussion of the definition and role of the State Lead Agency on the second day of the workshop.

An agenda containing these modifications was used in the second workshop, conducted in Hartford, Connecticut. Following that workshop, it was determined that two topics should be added to the agenda for all remaining workshops: (1) States Working Together -- One Common Goal, and (2) State Reports.

TASK II

Concurrent with the development and finalization of the plans for the workshops, workshop participants were identified, and invitations to workshops were issued.

Because the workshop dates extended from mid-February to early May, 1976, the process of identification of participants and issuance of workshop invitations also extended over approximately three months. For each workshop, Ellis Associates, Inc. issued invitations approximately six weeks in advance of the scheduled workshop date.

The procedure for identification and invitation of most workshop participants involved the Director of Vocational Education in every state and territory. Letters were sent to each State Director, requesting that four key vocational educators be designated for attendance at the workshop serving their state. The participants to be designated were (1) the Head State Supervisor of Vocational Agriculture, (2) the Head Teacher Educator in Vocational Agriculture, and (3) two Regional or District Supervisors of Vocational Agriculture. For these four professionals from each state and territory, expenses incurred in workshop attendance were paid as part of this project. Registration forms for the workshops were provided to each State Director, who in turn provided them to the persons designated for workshop attendance. In most cases, questions concerning the workshops that were raised by State Directors and their workshop designees were handled through telephone conversations.

In addition to the vocational agriculture leaders in each state and territory to whom the workshops were primarily directed, state lead agency heads, top administrators and pesticide specialists with EPA and the USDA Extension Service were invited to attend the workshops, as were other top vocational education administrators with USOE. Invitees included the following.

- From EPA, representatives from Headquarters; representatives from Regions, including Regional Administrators, Chiefs of Pesticide Branches, Regional Manpower Officers, Entomologists.

- From USDA Extension Service, representatives from Headquarters; Heads of Extension Services in states and territories.

- From USOE, representatives from Bureau of Occupational and Adult Education; representatives from Regional Offices, including Assistant Regional Commissioners for Occupational and Adult Education, and Regional Vocational Agriculture representatives.
- Head of State Lead Agency governing pesticide applicator certification, as designated by each state and territory.
- Vocational Agriculture Teachers involved in field testing of the training modules, to serve as resource persons to the workshops.
- Members of the Working Group on Training, Extension Committee on Policy, Extension Service, USDA.
- Other professionals concerned with training and certification of private pesticide applicators, as suggested by EPA and USOE.

In several instances, the top EPA, USOE, and USDA Extension Service administrators invited to the workshops were responsible for presentations and for participation in discussion groups and panels. Appendix C to this report contains the agendas for each of the workshops. These agendas illustrate the topics covered and the individuals involved in the presentations and discussions.

TASK I

The six workshops covering the 10 EPA regions were conducted as scheduled and in accordance with the workshop plans that were developed.

Across all workshops, attendance was excellent. The few instances in which invitees did not attend the workshops (primarily federal agency representatives headquartered in Washington, D.C.) were offset by instances in which additional persons from the states and regions elected to attend.

Total participation in each of the workshops was as follows.

- Atlanta, Georgia - Admiral Benbow Hotel - 45 participants
- Hartford, Connecticut - Sheraton Hartford Hotel - 63 participants
- Chicago, Illinois - Midland Hotel - 40 participants
- Kansas City, Missouri - Phillips House - 64 participants
- Denver, Colorado - Cosmopolitan Hotel - 40 participants
- San Francisco, California - San Francisco Hilton Inn - 47 participants

A listing of all participants across the six workshops is contained in Appendix D to this report.

Despite intensive efforts to schedule workshops at times which would not conflict with other meetings of potential interest to professionals concerned with pesticide applicator training and certification (as described under Task D, above), conflicts did occur. The Hartford, Connecticut, and Chicago, Illinois, workshops were affected by such conflicts. In neither case were the conflicts foreseen, in that the workshop schedule had been reviewed and checked for potential meeting-date conflict by both EPA and USDA. It is probably true that workshop participation in Hartford and Chicago was affected by the other meetings that were held, even though the actual participation experienced at both of these workshops did not fall significantly below that which was anticipated.

TASK J

A project such as this produces potential benefits for a great number of agencies, organizations, and institutions concerned with the preparation and certification of individuals as private pesticide applicators. To the extent possible, those likely to be affected by the project, and certainly, those likely to promote and contribute to the success of the project, should be made aware of its existence, and kept abreast of its activities. The establishment and maintenance of liaisons with the most appropriate agencies, organizations, and institutions across the country was one of the major tasks performed throughout this project.

Already cited in this report were the contacts made with Headquarters and Regional officials of EPA; Headquarters and Regional officials of USDA; Headquarters and state officials of the Extension Service; heads of State Lead Agencies. The numerous individuals contacted for various types of assistance and guidance in the development of the modules and the workshops were, in most cases, members of established committees concerned with vocational agriculture and pesticides, and members of professional associations sharing these interests. Included were the following:

- Working Group on Training, Extension Committee on Policy, Extension Service, USDA
- Vocational Agriculture Curriculum Committee, American Vocational Association
- Future Farmers of America
- National Agricultural Chemicals Association
- American Farm Bureau Federation
- National Association of State Departments of Agriculture

TASK K

As indicated in the introductory section of this report, the two basic products of this project are (1) the package of instructional modules for

preparation of private pesticide applicators in vocational agriculture education programs, and (2) a final project report documenting all project experience, and presenting recommendations for future government actions affecting the preparation of pesticide applicators in vocational agriculture education programs.

The preparation and submission of the instructional modules in final form involved one final task that was not included in the original scope of work for this project. This task was performed by Ellis Associates, Inc. in the interest of maximizing the quality of the module package submitted to EPA.

During the conduct of the series of workshops introducing the modules across the EPA regions, a log of staff and participant suggestions on ways to further clarify module content was maintained. With the exception of isolated technical errors discovered in the original materials that were drawn upon for the development of the modules, the changes that were suggested dealt mainly with changes in wording of definitions and explanations, to clarify their meaning and ensure student understanding.

The log of suggestions maintained by project staff was submitted to EPA. The potential modifications were reviewed by EPA, along with additional comments supplied by EPA reviewers. The modifications to be made to the modules were then finalized by Ellis Associates, Inc. in conjunction with the EPA Project Officer. The modifications to the original module copy were supplied to the curriculum and graphic arts consultants that had been selected, and the final camera-ready copy of the complete module package was produced. The camera-ready copy of the modules was then submitted to EPA.

The completion of the second product of this project involved the development of the recommendations for future action which follow.

FUTURE ACTIONS IN SUPPORT OF PRIVATE PESTICIDE APPLICATOR TRAINING IN VOCATIONAL AGRICULTURE EDUCATION PROGRAMS

This project represented a single concerted effort by the Environmental Protection Agency to develop instructional modules covering the proper use, handling, and application of pesticides, and to install those instructional modules in vocational agriculture education programs across the country. This initial effort has now been completed, and the attention of EPA must now turn to the task of supporting the preparation of private pesticide applicators on a continuing basis.

Throughout this project, numerous contacts have been made with representatives of the agencies concerned with the preparation of pesticide applicators across the country. On the basis of the experience gained through working with these individuals, and on the basis of observations made concerning the need for ongoing coordination and communication among the agencies involved, a number of actions affecting the cognizant agencies at the federal, regional, and state levels are recommended.

In general, EPA's objective for the future should be to work with cognizant agencies at all levels to ensure that vocational agriculture teachers are continuously apprised of the requirements for training private pesticide applicators for both certification and recertification. This means that EPA should be concerned with the flow of information to vocational agriculture teachers in two basic areas.

- Legislation/regulations governing pesticide application
- Training programs/materials covering pesticide application

The recommendations for EPA actions in support of training in vocational agriculture education programs are the following.

- The Office of Pesticide Programs within EPA and the Bureau of Occupational and Adult Education within USOE should jointly develop communiques to be sent to their respective regional offices and to all state departments of vocational education. Communiques should
  - summarize federal laws and regulations covering private pesticide application, and provide reference copies of such materials,
  - list and describe available training systems and materials covering private pesticide application, including those developed by EPA, and provide information on sources and costs of such systems and materials,

- highlight the need for, and importance of, action by the regional offices and the state departments of vocational education to encourage establishment of training programs;

- recommend coordination among the EPA and USOE regional offices and the state departments of vocational education, state extension services, and state lead agencies;

- encourage State Directors of Vocational Education to provide all information communicated to the Head State Supervisors of Vocational Agriculture, for their dissemination to vocational agriculture teachers and teacher educators throughout the states; and

- include a press release describing the importance of the proper use of pesticides, for distribution to local newspapers.

- The Office of Pesticide Programs within EPA and the Bureau of Occupational and Adult Education within USOE should jointly develop statements of policy concerning private pesticide applicator training and related subjects, and distribute these to their respective regional offices and all cognizant state agencies.

- EPA and USOE should jointly develop procedures to ensure that cognizant headquarters and regional personnel within one agency are continuously aware of the work being performed by cognizant headquarters and regional personnel within the other. Such procedures should focus on the coordination and effective utilization of the limited resources available to both agencies.

- EPA should develop procedures to inform cognizant USOE headquarters and regional personnel of conferences, meetings, workshops, etc. which deal with pesticide application, and which have relevance for vocational agriculture education.

- EPA should consider the development of a master list of professional and trade associations concerned with vocational education, agriculture, and pesticides. Such associations could be drawn upon by EPA for advice in regard to needs and concerns in the field.

- State lead agencies developing State Plans for Pesticide Application should be encouraged to obtain reviews of such plans by state departments of agriculture, state departments of vocational education, state extension services, universities, colleges, and other organizations or institutions sharing interest in, and responsibility for, education and training.

In addition to these recommendations for actions to support private pesticide applicator training in the field, EPA may also wish to consider the following.

- In conjunction with USOE, joint development and funding of a project to provide vocational agriculture programs across the country

with encouragement and technical assistance in the implementation of private pesticide applicator training.

- Funding of a project to develop education and training materials covering pesticide use, handling, and application in urban and suburban areas. The instructional modules which have been developed under contract to EPA address pesticide application in agricultural settings. A need remains for instructional materials appropriate for use in metropolitan areas, including inner cities.

- Within a reasonable period of time, revision of the instructional modules produced by Ellis Associates, Inc. to incorporate the SI (metric) system of weights and measures. Such a revision would also provide an opportunity to make any needed changes in module content resulting from changes in legislation or administrative policies.

APPENDICES

APPENDIX A

FIELD TEST TEACHERS AND SITES, BY EPA REGION

Region I	Mr. Richard Ahern Essex Regional Vocational and Technical Center Essex Junction, VT 05452
Region II	Mr. Craig Pederson and Ms. Peg Mahoney Freehold Township High School Elkton-Adelphi Road Freehold, NJ 07728
Region III	Mr. David A. Miller Gaithersburg High School 314 South Frederick Avenue Gaithersburg, MD 20760
Region IV	Mr. Thomas L. Hogan Southeast Guilford High School Route 4, Box 427 Greensboro, NC 27406
Region V	Mr. John Wright Worthington High School 1211 Clary Street Worthington, MN 56187
Region VI	Mr. John Dawley and Mr. William T. Woody Lorena High School P.O. Box 6 Lorena, TX 76655
Region VII	Mr. Richard Cooper and Mr. Thomas Neither Williamsburg High School Williamsburg, IA 52361
Region VIII	Mr. Robert Hamblen and Mr. John Pohly Larimer County Vocational and Technical Center P.O. Box 2307 Fort Collins, CO 80521
Region IX	Mr. Richard Sawyer Westwood High School 945 West 8th Street Mesa, AZ 85201
Region X	Mr. Elden Dais Meridian High School Meridian, ID 83642

APPENDIX B

CRITIQUE FORMS
FOR THE
FIELD TEST
OF

"PRINCIPLES OF PROPER PESTICIDE USE, HANDLING, & APPLICATION"

BACKGROUND INFORMATION

Size of Class _____ Grade Level of Class _____

Agriculture Background of Class _____
(Slight, Moderate, Extensive)

Length of Teaching Time Required for Entire Unit _____

Source Material Used _____

Source Material Needed _____

Audio-Visual Aids Used _____

Audio-Visual Aids Needed _____

Quality of Audio-Visual Materials _____
(Poor, Average, Excellent)

Suggested Time Allocation for Teaching Entire Unit _____
(In Hours)

Optimal Time Allocation for Teaching a Unit on Pesticide Certification _____
(Hours)

Student Motivation to Learn Subject Matter _____
(Low, Moderate, High)

Utilization of County Extension Agent _____
(Advice Sought, Materials Used,

_____
State and Local Regulations Taught, Etc.)

State Certification Examination Given _____ Results _____
(yes/no)

_____

Additional Comments and Suggestions _____

_____

_____

_____

_____

_____

_____

MODULE ___

TEACHER

Were the Objectives Understandable _____ (yes/no) Why Not? _____

Were the Objectives Easy to Communicate _____ (yes/no) Why Not? _____

Suggestions for Improving the Scope of the Module _____

Suggestions for Improving the Presentation of the Module _____

Especially Troublesome Areas or Objectives _____

MODULES

Length of Time Spent on Module _____ (In Hours)

What was the Pace _____ (Slow, Moderate, Fast)

What is the Recommended Pace _____ (In Hours)

Observed Weakness in Module Content _____

MODULE ____ (continued)

Observed Weakness in Module Format _____

Suggestions for Modifications to Objectives _____

Suggestions for Modifications to Information Sheets _____

Suggestions for Modifications to Transparencies _____

Suggestions for Modifications to Assignment Sheets _____

Modifications to Test Questions or Format _____

Other Modifications _____

MODULE ___ (continued)

STUDENT

Student Performance as Indicated by Grades _____
(Low, Average, Good)

Was the Grade Distribution as Expected _____

Student Performance as Indicated by Feedback _____
(Low, Average, Good)

Degree of Difficulty for Students to Learn _____
(Easy, Average, Difficult)

Especially Troublesome Topics or Objectives _____

_____

Student Questions Not Answerable via Modules _____

_____

Student Questions Difficult to Answer _____

_____

Student Motivation to Learn Subject _____
(Low, Moderate, High)

Emphasis Placed on Memorization _____
(Too Low, Moderate, Too High)

Emphasis Placed on Discussion _____
(Too Low, Moderate, Too High)

Objectives Added by Teacher _____

_____

Material Extraneous to Necessary Information _____

_____

Suggestions for Deletions _____

_____

Additional Comments _____

_____

APPENDIX G

AGENDAS FOR SIX WORKSHOPS

COVERING EPA REGIONS

ATLANTA REGIONAL TRAINING WORKSHOP
ON
FORMAT AND USE OF TRAINING MODULES
FOR
PRIVATE PESTICIDE APPLICATION

February 17-18, 1976

Admiral Benbow Hotel
1419 Virginia Avenue
College Park, Georgia 30337
Phone (404) 768-3615

Sponsored by
U. S. Environmental Protection Agency

Conducted by
BEEIA Associates, Inc.
P. O. Box 466
College Park, Maryland 20740
Phone (301) 864-7600

C-2

GENERAL CHAIRMAN
DR. MARY L. ELLIS

TUESDAY, FEBRUARY 17

8:00-9:00 a.m.	Registration - Lockheed Room, 1st Floor	
9:00 a.m.	Welcome	Regional Representative ASA FOSTER, Director Air & Hazardous Materials Division Environmental Protection Agency Regional Representative DONALD H. SPOKESBY Assistant Regional Commissioner U.S. Office of Education
9:15 a.m.	Topic	*Private Applicator Certification Laws and Regulations* ROY CLARK, Chief Pesticide Programs Branch Regional Office Environmental Protection Agency
9:30 a.m.		Panel of Reactors - Representatives, State Lead Agencies
10:00 a.m.	Topic	*Format and Use of Private Pesticide Application Training Module* BOB PATTON, Vocational Agriculture Curriculum Specialist Okla. State Dept. of Vo-Tech Ed SALLY McDONALD, Technical Specialist Ellis Associates, Inc.
10:30 a.m.	Coffee	Questions and Answers
11:30 a.m.	Topic	*Training Session on Module Use*
12:00-1:00 p.m.	Luncheon - Encore Room, 1st Floor	

:00 p.m.	Topic	*Training Session on Module Use* - Continued
:30 p.m.	Coffee	Questions and Answers
:45 p.m.	Topic	*Training Session on Module Use* - Continued
:00 p.m.	Questions and Answers	
:15 p.m.	Topic	*Availability of Training Materials from Environmental Protection Agency* BILL HOFFMAN, Acting Chief Training Branch Environmental Protection Agency Headquarters
:50 p.m.	Announcements	
:00 p.m.	Adjourn	
:00-9:00 p.m.	Review Pesticide Films, Slide Series and Other Resource Materials (Option of Participants) Rooms 107, 113 & 119	

WEDNESDAY, FEBRUARY 18

9:00 a.m.	Topic	*Dialogue:* Disease Rates - One Common Goal CHET GIBBS, Program Leader Pesticide Chemicals Extension Service Headquarters CURTIS CURRIE, Georgia State Supervisor, Agricultural Educ. Representing U.S. Office of Educ. BILL HOFFMAN, Acting Chief Training Branch Environmental Protection Agency Headquarters
10:00 a.m.	Questions and Answers	
10:30 a.m.	Coffee	
10:45 a.m.	Topic	*Certification Mechanism: Tests on Approved Training* ROY CLARK, Chief Pesticide Programs Branch Regional Office Environmental Protection Agency
11:00 a.m.		Panel Discussion - Representative State Lead Agencies
11:30 a.m.	Questions and Answers	
12:00 noon	Recap	
12:15 p.m.	Adjourn	

[illegible]

[illegible]

March 1-4, 1976

[illegible]
Civic Center Plaza, Trumbull Street
Hartford, Connecticut 06103
Phone (203) 728-5151

Sponsored by
U. S. Environmental Protection Agency

Conducted by
[illegible] Associates, Inc.
P. O. Box 669
College Park, Maryland 20740
Phone (301) 864-1600

MONDAY, MARCH 1

7:30-8:30 a.m.	Registration - Ballroom West, 3rd Floor	
8:30-8:45 a.m.	Workshop Objectives - Dr. Mary L. Hilp	
8:45 a.m.	Welcome	Regional Representative GABRIEL G. MADELA, Entomologist Pesticides Branch Region I Environmental Protection Agency Regional Representative NICHOLAS J. [illegible] Program Officer, Vocational Educ Region I U.S. Office of Education
8:55 a.m.	Topic	Private Applicator Certification Laws and Regulations WILLIAM DAVIS, Chief Pesticide Programs Branch Region III Environmental Protection Agency
9:10-9:30 a.m.	Topic	Dialogue: Diverse Roles - One Common Goal BILL HUFFMAN, Acting Chief Training Branch Headquarters Environmental Protection Agency L. GREY GIBBS, Program Leader Pesticide Chemicals Headquarters Extension Service D. NEVILLE HUNNICUTT Education Program Specialist Headquarters U.S. Office of Education

30 a.m.	Coffee	Questions and Answers
:00 a.m.	Topic	Technical Content and Format of Private Pesticide Application Training Modules PAUL A. MCDONALD Pesticide Specialist Mills Associates, Inc. EDWARD SMITH Curriculum Specialist Oklahoma State Department of Vocational-Technical Education
:30 a.m.	Topic	Mini-Training Session on Label and Labeling Modules
:00-1:00 p.m.	Luncheon - Ethan Allen Room	
00 p.m.	Topic	Mini-Training Session on Label and Labeling Modules - Continued
45 p.m.	Coffee	
00 p.m.	Topic	Mini-Training Session on Label and Labeling Modules - Continued
00 p.m.	Questions and Answers	
30 p.m.	Topic	Availability of Resource and Other Supplemental Materials BILL HOFFMAN, Acting Chief Training Branch Headquarters Environmental Protection Agency
30 p.m.	Announcements	

C-5

5:00 p.m. Adjourn

7:00-8:30 p.m. Review Resource and Other Supplemental Materials: Pesticide Film and Slide Seri. (Option of Participants)
Local Future Home

TUESDAY, MARCH 3

8:30 a.m. Topic General Discussion - State Lead Agencies - Who Are They and What Is Their Role?
MARY L. ELLIS
Discussion Leader

9:30 a.m. Questions and Answers

10:00 a.m. Coffee

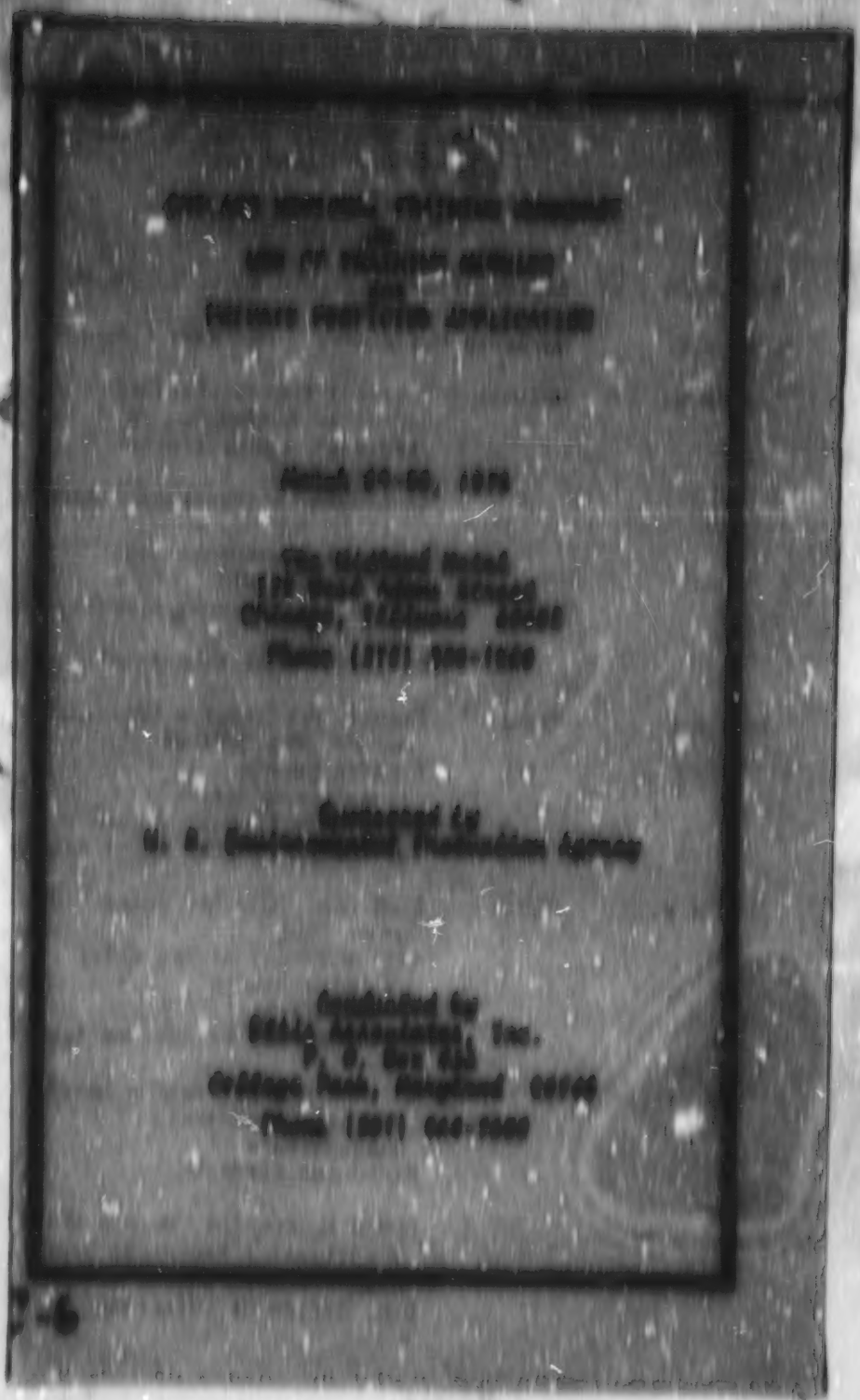
10:15 a.m. Topic Certification Mechanism: Tests on Approved Training
HENRY ASH
Pesticide Program Office
Region II
Environmental Protection Agency

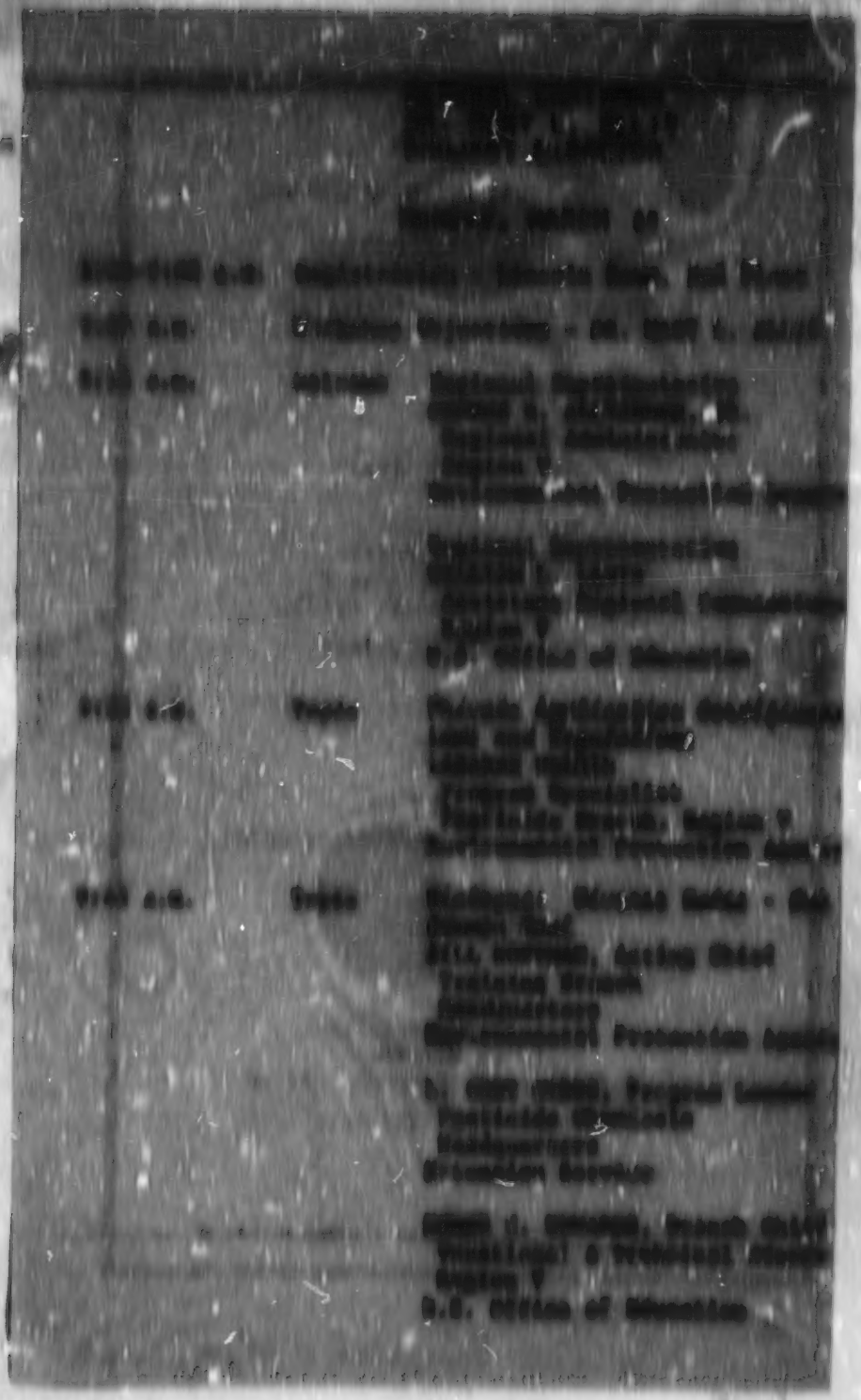
10:30 a.m. Panel Discussion - State Lead Agency Representatives

11:00 a.m. Questions and Answers

11:45 a.m. Recap

12:00 noon Adjourn





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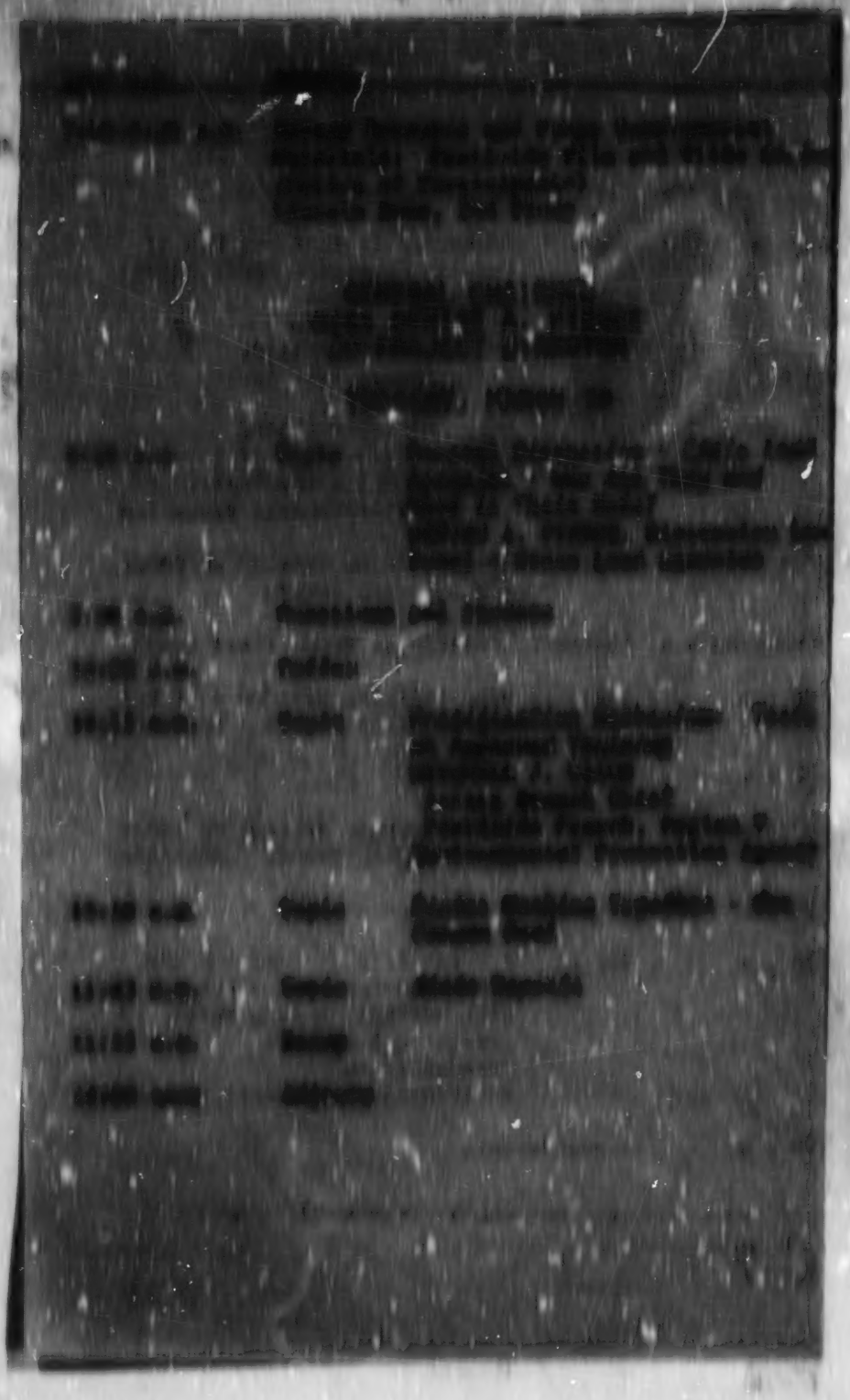
C-7



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C-7

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DENVER REGIONAL TRAINING WORKSHOP
ON
USE OF TRAINING MODULES
FOR
PRIVATE PESTICIDE APPLICATION

April 26-27, 1984

The Cosmopolitan Hotel
1790 Broadway
Denver, Colorado 80202
Phone (303) 623-5181

Sponsored by
U. S. Environmental Protection Agency

Conducted by
ERRIA Associates, Inc.
P. O. Box 465
College Park, Maryland 20740
Phone (301) 864-7600

C-10

GENERAL CHAIRMAN
DR. MARY L. BILYEU
PROJECT DIRECTOR

MONDAY APRIL 24

8:00-9:00 a.m. Registration - Broadway Arms, Mezzanine

9:00 a.m. Workshop Objectives - DR. MARY L. BILYEU

9:15 a.m. Welcome Regional Representative
[illegible]
Deputy Regional Administrator
Region VIII
Environmental Protection Agency

Regional Representative
[illegible]
Assistant Regional Commissioner
Region VIII
U.S. Office of Education

9:25 a.m. Topic Private Applicator Certification
Laws and Regulations
DeWITT M. BAULCH
Chief of State Assistance
Region VIII
Environmental Protection Agency

9:45 a.m. Topic Dialogue: Disease Rules - One
Common Goal
BILL HOFFMAN, Acting Chief
Training Branch
Headquarters
Environmental Protection Agency

L. CHET GIBBS, Program Leader
Pesticide Chemicals
Headquarters
Extension Service

JOHN W. LACEY
Senior Program Officer
Vocational & Technical Educati
Region VIII
U.S. Office of Education

10:10 a.m.	Outline	Questions and Answers
10:40 a.m.	Topic	Technical Content and Use of Private Pesticide Application Training Modules SALLY A. McDONALD Pesticide Specialist Ellis Associates, Inc. BOB PAYTON Coordinator of Curriculum Oklahoma State Department of Vocational-Technical Education
11:10 a.m.	Topic	Mini-Training Session on Label and Labeling Module
12:00 1:00 p.m.	Luncheon - Broadway Arms, Hennessino	
1:00 p.m.	Topic	Mini-Training Session on Label and Labeling Module - Continued
1:45 p.m.	Coffee	
2:00 p.m.	Topic	Mini-Training Session on Label and Labeling Module - Continued
3:00 p.m.	Questions and Answers	
3:30 p.m.	Topic	Availability of Resource and Other Supplemental Materials BILL HOFFMAN, Acting Chief Training Branch Headquarters Environmental Protection Agency
3:50 p.m.	Announcements	

P-11

5:00 p.m. Adjourn

7:00-8:30 p.m. Review Resource and Other Supplemental Materials: Pesticide Film and Slide Series (Option of Participants)
Broadway Arms, Mezzanine

GENERAL CHAIRMAN
MISS DENISE A. PIERCE
CO-PROJECT DIRECTOR

TUESDAY, APRIL 27

8:30 a.m. Topic General Discussion - State Lead Agencies - Who Are They and What Is Their Role?
DENISE A. PIERCE, Discussion Lea

Panel - State Lead Agencies

9:30 a.m. Questions and Answers

10:00 a.m. Coffee

10:15 a.m. Topic Certification Mechanism: Tasks as Approved Training
DALLAS HILLIS
State Program Advisor
Region VIII
Environmental Protection Agency

10:30 a.m. Topic States Working Together - One Common Goal

11:00 a.m. Topic State Reports

11:45 a.m. Recap

12:00 noon Adjourn

APPENDIX D

PARTICIPANTS IN SIX WORKSHOPS

COVERING EPA REGIONS

ATLANTA REGIONAL TRAINING WORKSHOP
on
FORMAT AND USE OF TRAINING MANUALS
for
PRIVATE PESTICIDE APPLICATION

ADMIRAL BENBOW HOTEL, COLLEGE PARK, GEORGIA
February 12-13, 1976

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ON
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